NEW HAMPSHIRE
OEP
OFFICE OF ENERGY AND PLANNING

LAND USE AND TRANSPORTATION

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Contents:

Office of Energy & Planning
57 Regional Drive, Suite 3
Concord, NH 03301
Voice: 603-271-2155
Fax: 603-271-2615
Web: www.state.nh.us/oep

This technical bulletin was developed to help local planning board members understand the importance of considering the connection of land use and transportation issues during the decision-making process. Taking a step back and analyzing the effect that one will have on the other allows for better coordination that will ultimately result in a better quality of life for everyone. The first section of this bulletin discusses the linkage between land use and transportation. The second section focuses on the role of the state, regions and local communities in addressing land use and transportation issues and, finally, different tools and techniques for dealing with these issues are presented. It is not the intent of this technical bulletin to provide solutions for every local problem or to present every alternative available, but rather to get local board members thinking about the effect that everyday decisions might have on the fabric of their community.

INTRODUCTION

The issue of growth is increasingly important in many New Hampshire communities, as civic leaders and citizens alike work to find ways to ensure a viable, long-term economic prosperity while preserving historic community character. The concept of livability – the notion that growth and development should occur in ways that enhance the human and natural environments in the present and also the long term – has taken root across the state, introducing a new framework for local and regional planning. Communities are beginning to consider innovative ideas for meeting the needs of their residents, whether for transportation, housing, shopping, or recreation.

Better coordination between transportation and land use allows communities to plan more comprehensively for housing, for commercial and retail uses, and for the provision of education and other public services, all in the context of accessible transportation. This can mean the installation of a new public transit line, the construction of bicycle or pedestrian paths, or the redesign of a much-used roadway, depending on the needs of the individual community. From a land use standpoint, this can mean the development of a more compact mixed-use neighborhood or the encouragement of infill development so that residents can use transportation modes other than their cars to get to work, to shop or to use town facilities. With its focus on providing options that meet local needs while protecting local assets, sustainable planning offers flexibility and choice.

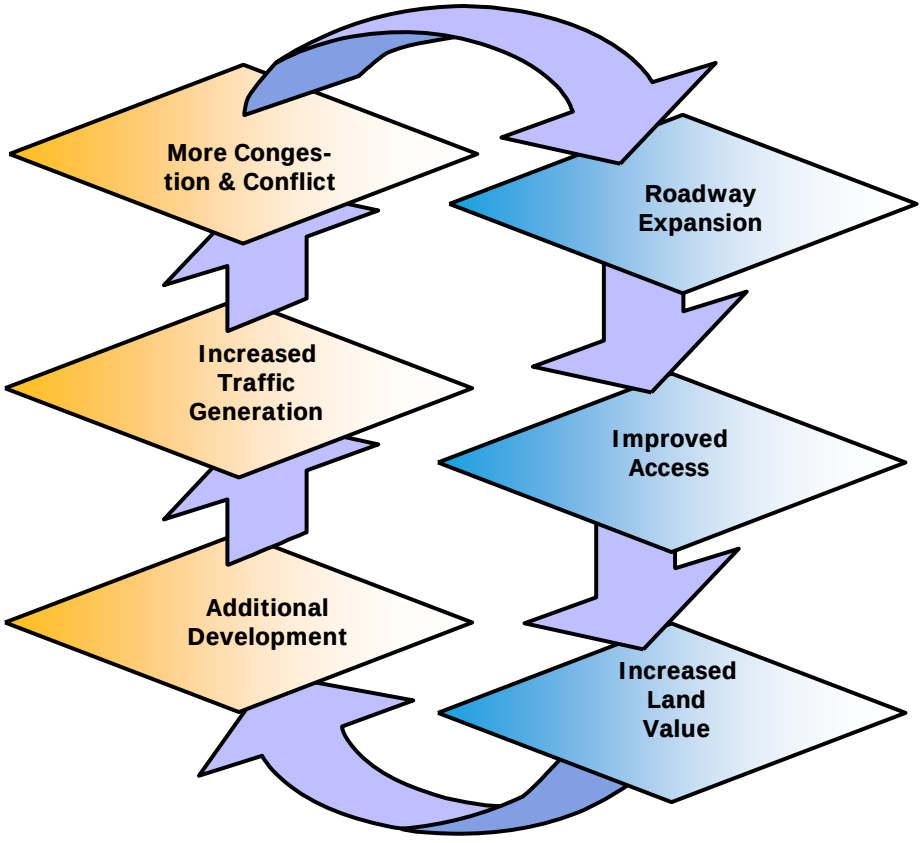
In New Hampshire, political leaders, planning professionals, and private citizens are increasingly aware of the connection between land use policies and transportation planning. Transportation infrastructure and land use guidelines create the framework within which communities grow, influencing urban and rural development, economic prosperity, environmental quality and social equity. In many communities, however, transportation and land use policies are often considered separately, a dissociation that can lead to inefficient resource use and excessive environmental impact.

Designing transportation systems that enhance mobility, economic vitality, and community livability is a major challenge for many New Hampshire communities.

Linkage of Land Use and Transportation Planning in NH

A classic example of poor integration of land use and transportation planning is strip development along state highways. This lack of coordination often results in congestion, safety problems, lack of access by modes other than automobile and eventual need for expansive capacity improvements on the road. This scenario of the "Transportation Land Use Cycle" is depicted below.

The Transportation Land Use Cycle



"...this cycle continues until it is physically or economically impossible to further expand capacity. Access Management together with good land use controls can preserve highway capacity and effectively slow down or halt the cycle."
-- FHWA Access Management Project

In this cycle, a well-traveled road with excess capacity attracts additional land development (often retail or commercial development in need of high visibility and access). This results in additional traffic generation and the erosion of highway capacity and function. Eventually the congestion becomes severe enough that a further expansion of the roadway is prompted, and the cycle begins again. This cycle can be seen along many highways around New Hampshire.

To the extent that they are able, local planning boards should consider transportation issues in reviewing land use permit applications. However, local zoning regulations are often not well designed to address the transportation-land use connection.

Another example of poor integration of land use and transportation planning is location of public facilities such as schools, post offices, or courthouses built at the outskirts of town where they are inaccessible by foot and difficult to access by bicycle or transit. A third example is the implementation of policies that discourage housing near job centers, leading to heavy commuter traffic between bedroom communities and job centers.

ROLE OF THE STATE, REGIONS AND LOCAL COMMUNITIES

State

Over the years, our state's economy has depended on an efficient and effective transportation system. Moving tourists and visitors, commuters, raw materials and components for manufacturing, and finished products to wholesale and retail centers requires a safe and efficient statewide transportation system.

The challenge is to meet this transportation demand within ever-changing economic, environmental, and social constraints. In developing the Long Range Statewide Transportation Business Plan (LRSTBP) and a project specific Statewide Ten Year Transportation Plan (STYP), the New Hampshire Department of Transportation (NHDOT) is enhancing the public's role in the process, forming a strong partnership between the regional planning commissions, state agencies and the public, while being fully aware of the constraints that would apply to the implementation of any plan.

The New Hampshire Department of Transportation (NHDOT) is constantly looking ahead to plan for the transportation needs of New Hampshire residents. Their mission is to plan, construct and maintain the best possible transportation system and State facilities in the most efficient and economical manner using quality management techniques consistent with available resources and mandated controls.

The NHDOT is currently developing a new version of its Long Range Statewide Transportation Plan (LRSTP) to be used as a blueprint to implement the statewide transportation mission. The implementation of projects supporting the goals and initiatives of the LRSTP is done through the development of a statewide Ten Year Plan (TYP) which requires a cooperative effort be-

State Agencies

Office of Energy and Planning
(603) 271-2155

Department of Transportation
(603) 271-3914

Department of Environmental Services
(603) 271-3503

Department of Resources and Economic Development
(603) 271-2411

Fish & Game Department
(603) 271-3511

tween the NHDOT, the regional planning commissions, local elected and appointed officials and the general public. For more information on theses NHDOT planning efforts refer to the following link: webster.state.nh.us/dot/business/municipalities.htm.

By working closely with their Regional Planning Commissions (RPC) and the NH Department of Transportation on local transportation and land use issues, local communities can talk about the specific issues they are dealing with and explore a wide range of solutions to these local problems. This close collaboration can help alleviate the cost of possible long-term solutions to traffic and other problems by developing short-term alternatives. In fact, the answer to a transportation problem is not always the redesign of an intersection. There may be some incremental short-term changes that could reduce or even end the problem.

Regional Planning Commissions and/or Metropolitan Planning Organizations

Regional planning commissions (RPC's) and metropolitan planning organizations (MPO's) are responsible for the coordination of transportation planning at the regional level through the preparation of regional transportation plans. A metropolitan planning organization is responsible for comprehensive transportation planning and programming in urbanized areas.

The main duty of a regional planning commission is "to prepare a coordinated plan for the development of a region, taking into account present and future needs with a view toward encouraging the most appropriate use of land, such as for agriculture, forestry, industry, commerce, and housing; the facilitation of transportation and communication; the proper and economic location of public utilities and services; the development of adequate recreational areas; the promotion of good civic design; and the wise and efficient expenditure of public funds." (RSA 36:45)

Specifically, the NH MPOs, as well as regional planning commissions in more rural areas, are required to develop and maintain three key products: a Long Range Transportation Plan (the document that identifies transportation policies for the region); a Transportation Improvement Program (the list of projects that is to be implemented) and a Unified Planning Work Program (the 2 year work plan and budget of the organization). These multiple layers of plans and programs create a challenging set of issues to coordinate.

Local communities can be actively involved in the planning process at the regional level. Regional planning commissions and metropolitan planning organizations have committees, comprised of local officials, to help with various transportation related planning efforts and actively seek public input by holding hearings, meetings and workshops.

Local Communities

As you consider how to address your community's needs over the short and long-term, you will need to consider the entire array of factors that can influence the growth and development of your community. For example, if your

NH Regional Planning Commissions

North Country Council
(603)444-6303

Lakes Region Planning Commission
(603) 279-8171

Upper Valley Lake Sunapee Regional Planning Commission
(603) 448-1680

Central New Hampshire Regional Planning Commission
(603) 226-6020

Southwest Region Planning Commission
(603) 327-0557

Southern New Hampshire Planning Commission
(603) 669-4664

Nashua Regional Planning Commission
(603) 883-0366

Strafford Regional Planning Commission
(603) 742-2523

Rockingham Planning Commission
(603) 778-0885

community wants to attract industrial businesses then good connections to the regional and statewide transportation networks will be necessary. Additionally, decisions regarding lot size for a new subdivision can have an impact on travel choices – smaller lots with mixed land uses will make the option to travel by a means other than a car more attractive, while larger lot size with separated land uses will likely increase individual decisions to rely on cars for travel.

Although transportation is not the only influence on land use, it is important for your community to be aware that the decisions you make regarding your transportation system may affect land use both directly and indirectly. You should also be aware of the cumulative or overall effects of your transportation decisions on the living environment. Understanding these concepts will help local leaders and boards make informed decisions for both transportation and land use elements.

Direct impacts are impacts that are directly caused by the construction of a new transportation facility, changes to an existing road, and/or decisions to change the traffic patterns along a road. These may result in both positive and negative impacts. For example, positive impacts may include the diversion of truck traffic from a downtown area, or the creation of a safer walking environment in the area by reducing the high incidence of crashes. Potentially negative direct impacts resulting from transportation decisions may include loss of natural resources such as agricultural land, forests, and wetlands to accommodate the new facility, as well as fragmentation of habitats and threats to endangered species.

Indirect impacts of transportation decisions may also influence land use patterns but are not directly related to the project and therefore, may not be as easily discernible. For example, a capacity expansion project designed to accommodate increasing traffic levels along a road may have an impact on future land use patterns in the area by making the adjacent land either more or less attractive for development. At the same time, however, decisions regarding the location of different land uses, through the promotion of mixed use and/or high density developments, can lead to increased transportation options by users in the area.

In addition to considering individual direct or indirect impacts of transportation decisions, it is important that you consider the "big picture" and how decisions for one area of the community may impact other areas locally and/or regionally. For example, the location of a new public street intersection with a highway will often lead to increased development in the vicinity of the new access. The new development may result in increased jobs for the community, which may, in turn, result in population growth, potentially resulting in the need for new services such as new schools and extended public utilities.

In New Hampshire, as in many other states, local governments prepare master plans, determine local transportation choices and make local land use decisions (such as zoning changes). Private interests propose development and

physically develop land (such as housing subdivisions). Here are some of the main local tools/regulations in which the land use and transportation connection should be addressed.

Master Plan

*For more information on the regulating statutes for Master Plans, refer to **RSA's 674:2 through 674:4**.*

*For more information on the planning process and preparation of a local Master Plan, refer to **Preparing a Master Plan for Your Community: A Handbook for Planning Board Members, Planners and Volunteers**, prepared by the Southern New Hampshire Planning Commission, 2004.*

The purpose of a Master Plan is to guide the development of a community. Preparing the Master Plan is one of the main responsibilities of the Planning Board. The Master Plan provides data on current conditions and historical trends; outlines the community's policies toward development; recommends future land use and development patterns; and serves as the basis for the community's zoning, subdivision and site plan regulations. The general land use policies of the Master Plan define what the community wants to look like in the future.

During the master planning process, communities should evaluate their transportation system to identify important local corridors and issues surrounding future development within these corridors. Once the process is completed, communities should meet with representatives from the RPCs and the NHDOT to discuss local issues and policies for future development outlined in the Master Plan. The Planning Board should also identify any corridors in need of additional planning. Comprehensive studies can assist in maintaining roadway capacity through a higher awareness of the impacts of various land uses and development designs.

Zoning Ordinance

*For more information on the regulating statutes for Zoning Ordinances, refer to **RSA's 674:16 through 674:23**.*

Having evaluated joint transportation and land use issues in the Master Plan and established policies to guide future development, the community should then examine the provisions of its zoning ordinance to evaluate its impact on the capacity of the transportation system.

The zoning ordinance is the principal tool for implementing the Master Plan. It establishes the basic development parameters for the community by defining what types of development will be permitted, where they will be allowed and the basics of how they will be designed. A community's zoning ordinance defines land development patterns and has a significant impact on the transportation network.

Subdivision and Site Plan Review Regulations

*For more information on the regulating statutes for Subdivision Regulations, refer to **RSA's 674:35 through 674:42**.*

The subdivision and site plan regulations define how development will take place within a community. These regulations are more flexible than the zoning ordinance because they are adopted by the Planning Board and can be amended at any time by a majority vote of the Board after a properly noticed public hearing. In addition, the Planning Board has the authority to waive any of the requirements within the regulations.

The regulations specify the information that needs to be provided as part of the development review process. Design standards are set forth covering such areas as roads, parking, sidewalks and pedestrian circulation, vehicle circulation, landscaping, stormwater management, utilities and fire protection. The regulations also specify what information is to be provided to the Planning Board to assist in the decision making process. One such item directly related to transportation issues is the traffic study. The traffic study provides the

planning board with the detailed information required to assess the impact of the proposed development on the existing transportation system and recommends a course of action to alleviate the impact such as constructing a turning lane or installing a traffic signal.

Driveway Regulations

The NH DOT issues driveway permits for all proposals for access to the state road system. Until recently, the DOT would issue permits with limited input from the local decision makers. To improve the coordination of local and state planning objectives along the state's road system, the DOT has instituted a process to better involve local officials in the permitting process. The DOT has developed a Memorandum of Understanding (MOU), which is an agreement between the DOT and the community to coordinate the review and issuance of driveway permits to access state roads.

*For more information on the regulating statutes for Driveways, refer to **RSA 236:13**. A number of requirements are needed for the community and NHDOT entering a MOU. For more information on these requirements, refer to http://www.nh.gov/dot/highwaymaintenance/pdf/DrivewayPolicy.pdf.*

TOOLS AND TECHNIQUES

The land use decisions that your community makes to accommodate growth and economic development will directly impact your transportation system. Addressing a community's land use and transportation needs separately, without considering the impacts to the other, may result in undesired or unwanted patterns of community growth and development, such as separated land uses or development that is sprawling, consuming a large amount of land. These less desirable patterns of growth can then bring heightened safety concerns, increased congestion, and a potentially greater reliance on cars rather than other travel choices. Therefore, it is important that, as local boards develop the community's land use and transportation elements, they consider how these two components interact and impact each other. Access management, corridor planning, transit-oriented development, context sensitive solutions and traffic calming are management techniques that will help communities consider the impacts of their transportation decisions and further maintain the efficient and safe operation of the transportation infrastructure.

Corridor Planning

An important concept in transportation planning is the consideration of an entire transportation corridor, with associated goals to integrate land use planning and access management, and ensure that all transportation choices are accommodated as appropriate. Transportation corridors are broadly defined as connections between communities or regions, or as major links between travel origins and destinations within a city, village, or town. They can be existing or new facilities. Because transportation corridors will likely extend beyond your community's borders, it is important that your planning efforts include developing partnerships with neighboring communities.

While there may be some transportation corridors that lie totally within a single community, most will cut across jurisdictional boundaries. The corridors you identify as significant to your community may also be important to travel

*Most **corridor studies** done in New Hampshire have been funded through the Statewide Planning and Research (SPR) special studies program with the NH Department of Transportation. These funds represent 2% of all federal funds received by the state. Twenty-five percent of the funds must be used for research but the remaining funds are used for SPR activities including the planning of future transportation programs, engineering and economic surveys and investigations, studies of economy, safety, and convenience of highway usage, development of the State Transportation Improvement Program (STIP) and the preparation of the Long Range Statewide Transportation Plan (LRSTP).*

needs for a neighboring community, the region and/or statewide travel. If your community has identified a corridor that falls into this category, it is important that you partner with the appropriate parties to discuss how to preserve and enhance the entire corridor.

If you choose to address only that portion of the corridor that runs through your community, you may impair the connectivity of the corridor between communities, as well as reduce the attractiveness of future development opportunities in the area. If your community is located within an MPO or RPC planning area, it is essential that your corridor planning efforts include representatives from the MPO or RPC, as well as NHDOT.

Benefits of Corridor planning

There are several reasons to conduct corridor planning. These may include:

- *Identifying desired land uses for adjacent property, including the type and scale of development to be encouraged;*
- *Specifying points of access along the roadway;*
- *Identifying ways to maintain the efficient operation of an existing corridor;*
- *Ensuring adequate space to expand a roadway on its existing alignment if additional capacity becomes necessary;*
- *Establishing intergovernmental part nerships and agreements for the future development of a specified corridor;*
- *Identifying the location of a new corridor and taking steps to preserve the land so it is available when needed; and*
- *Identifying needed transportation im provements along existing corridors.*

Your corridor planning efforts should include components such as land use planning, access management, traffic operations management, the consideration of other modes and corridor preservation techniques. In addition to addressing the current and future infrastructure improvements, you should consider how the transportation services along the corridor will be impacted by your community's planned development, estimated population growth, and current and planned changes in land use.

For more information on the Route 2 Corridor Study or to find out information about other corridor studies, please contact your respective regional planning commission.

US Route 2 Corridor Study

In July 2000, the former Office of State Planning, in conjunction with the New Hampshire Department of Transportation, coordinated a study of the Route 2 corridor through northern New Hampshire. The highway is a major trade and travel route connecting northern New England. Its location in the midst of the White Mountain's Presidential Range also makes it a very scenic area frequented by tourists. The 35.4 mile stretch of highway travels east and west through the towns of Lancaster, Jefferson, Randolph, Gorham, and Shelburne. The intent of the study was to develop a plan of action to preserve capacity and improve safety along this valuable commercial corridor, while integrating it into the communities through which it passes. The process was designed to develop a plan that respects the regional perspective of the corridor while maintaining the individuality of each corridor community.

By June 2001, the US Route 2 Corridor Study had been completed. Each town was issued a report, which summarized the results of the public meetings held in each community, the issues and opportunities defined throughout the process and specific recommendations for each community. Specific locations along the corridor were analyzed in the context of:

US Route 2 Corridor Study (Con't)

1. Road Safety and Capacity;
2. Recreation and Alternative Transportation;
3. Wildlife and the Environment; and
4. Community and Quality of Life.

From that analysis communities then prioritized issues to be addressed. The consultants, Vanasse, Hangen, and Brustlin, presented very specific recommendations to improve the safety, efficiency, and scenic beauty of Route 2 for both travelers and residents. Two important components of these recommendations included Access Management and Land Use Regulations, both of which could be addressed at the town level.

It is important to note the many successes of this study. At the very beginning of the study a great deal of time was spent talking about how each community differed, but within a short period of time the communities realized how much they have in common. Now the five communities have a common vision, a desire to complete a regional master plan, and a commitment to continue communicating.

Access Management

Access management seeks to limit and consolidate access along major roadways, while promoting a supporting street system and unified access and circulation systems for development. The result is a roadway that functions more safely and efficiently for its useful life, and a more attractive corridor.

The degree of access control onto and off a road can impact the type and amount of development that will occur along that same road. Incorporating access management techniques into your planning process is one way for your community to help preserve the efficient operation of a transportation corridor.

The goal of access management is to limit the number and control the spacing of access points (ideally before development occurs), thus reducing the number of potential conflict points a user (i.e., a pedestrian, bicyclist, or motorist) may encounter. Additionally, access management techniques balance the need to preserve the safe and efficient flow of traffic, while allowing for adequate, safe, and reasonably convenient access to adjacent land and land uses.

What Can Access Management Accomplish?

Effective access management can:

- *Increase highway capacity 25-30%;*
- *Extend the functional life of our existing highways by preserving their capacity;*
- *Reduce the need to spend tax dollars on capacity expansion;*
- *Protect the economic viability of parcels adjacent to arterials by preventing congestion that will discourage users from coming;*
- *Reduce travel and delay times by 40-60%;*
- *Decrease energy consumption by 35-50%;*
- *Reduce vehicle emissions by reducing acceleration, deceleration, and stops; and*
- *Maintain a community's character.*

There are several techniques that you may consider using as you incorporate access management principles into your planning initiatives. They can gener-

***Access management** policies, after being addressed in the town/city master plan, should be incorporated in local site plan review and subdivision regulations and be taken into consideration for each plat approval so that the planning board does not lose track of the "big picture". Regional planning commissions can work with your local planning board to help integrate access management into the planning process and develop efficient regulations that will address specific local issues.*

ally be divided into two categories: 1) development related, and 2) roadway related.

Nashua and Rockingham regional planning commissions have developed access management guidelines that communities can use as the basis for new regulations. (You can access these on their respective websites: http://www.nashuarpc.org/publications/index.htm and http://www.rpc-nh.org/docs.htm.)

Development related techniques address the potential impacts associated with decisions made for land abutting a roadway. These may include:

- *Avoiding narrow, commercial strips along roadways;*
- *Requiring developers to provide a connected and sufficient local road system to minimize using the main arterials for short trips (e.g., connected bike and pedestrian facilities);*
- *Requiring master planning for large tracts of land;*
- *Planning and designing transportation improvements that fit with the character of your community;*
- *Requiring developers to provide traffic impact analyses for large developments; and*
- *Investigating the inner-connectivity between parcels for developed and un-developed land (Frontage/Service Roads).*

Roadway related techniques consider how traffic flow may be managed on the road, and include design considerations, such as:

- *Location, design and spacing of driveways, streets, and medians;*
- *Location, design, and openings of medians;*
- *Providing turn lanes;*
- *Considering proper spacing and timing of traffic signals;*
- *Protecting intersections and interchanges from increases in traffic;*
- *Investigating the potential for shared access points along a road, and for inter-connectivity between parcels; and*
- *Providing for local traffic in the community's road network, instead of relying on the state highway.*

Resource: *Wisconsin Transportation Planning Resource Guide., Chapter 5.*

Ideally, access management techniques are applied to transportation corridors just beginning to experience development pressures. In developed areas, opportunities to manage access may be limited to redevelopment opportunities, planned future developments, and/or roadways that involve reconstruction projects.

If the transportation corridors in your community are already developed, your efforts should focus on identifying redevelopment opportunities. As you consider these opportunities it is important to review your community's goals for growth, economic development and the anticipated changes in land use patterns. Once areas for potential redevelopment are identified, you should consider certain access management techniques.

Nodal Development

Nodal development consists of a center that contains a mix of compatible uses, a variety of housing types and a total population somewhat higher than in comparable areas outside the centers. It is development that is clustered in a population center. Nodes are usually pedestrian and transit-oriented local

Three Tips for Gaining Acceptance of Good Nodal Design

1. ***Inform residents that density does not lower adjacent property values.***
   Studies have repeatedly shown that well-maintained, well-designed compact housing - whether market rate or affordable - does not lower the value of nearby homes.[1]

2. ***Engage neighbors in a discussion about compact development.***
   Exploring neighbors' fears and concerns about compact development can provide meaningful dialogue about how to create communities that people want to live in. Getting input from the public early in the development process can help build support for projects and minimize future opposition.

3. ***Consider the fiscal savings***
   Low-density development requires greater public subsidies for sprawling infrastructure and services. Compact development helps reduce well-documented social and health costs attributed to sprawl.

areas that include places to live, places to work, and places to shop and get other services. In New Hampshire, a node is usually referred to when talking about a compact village center (for rural areas) and a downtown area or small neighborhood where a mix of uses can be found (for a more urban setting). It is a safe place where walking is encouraged, conflicts between pedestrians and motor vehicles are minimized, and bicycle routes are fully connected and well marked. Finally, a node has a recognizable identity and center.

Nodal development is a way to direct growth towards existing communities that are already served by viable infrastructure. Nodal development uses the resources that existing neighborhoods offer, and maintains the value of public and private investment. By encouraging development in existing areas, communities benefit from a stronger tax base, closer proximity of jobs and services, increased efficiency of already developed land and infrastructure, reduced development pressure in fringe areas, and preservation of farmland and open space.

In addition, the process of increasing development in communities can maximize the use of existing impervious surfaces, such as existing shared parking lots, thereby improving local and regional water quality. Denser development can also create opportunities for more transportation options, which lower vehicle miles traveled and ultimately improve regional air quality. Often existing neighborhoods can accommodate much of the growth that communities require through infill development, brownfields redevelopment, and the rehabilitation of existing buildings.

Transit-Oriented Development

Transit Oriented Development (TOD) focuses on a mix of land uses, such as residential, office, shopping, civic uses and entertainment within easy walking distance from a transit station (1/4 mi., 5-10 mins.). This mix of uses, combined with thoughtfully designed community spaces, plazas, etc., forms a vibrant village-like neighborhood where people can live, work and play. Such a

Nodal Development *can be implemented through the insertion of specific regulations into the zoning ordinance. The concept of nodal development is closely related to the village plan alternative talked about in RSA 674:21. Rockingham Planning Commission has developed a model ordinance for a Village Plan Alternative Subdivision, which can be found on their website at: www.rpc-nh.org/Village-Design.htm*

1-Studies by US General Accounting Office, UC Berkeley's Institute for Urban and Regional Development, California's Department of Housing and Community Development, and Princeton's Woodrow Wilson School of Public and International Affairs.

Transit-Oriented Developments (TOD's) *are better suited for the southernmost populated part of the state and their use is limited to a very few cities with potential access to transit systems.*

village is compact in size, pedestrian-friendly in design, can be customized to offer a wide variety of housing options, with convenient access to services, jobs, and plenty of ways to get around.

TOD combines walkable access to public transport with a vibrant mixture of urban and rural life, including shopping, entertainment, recreation, business and community facilities. Focusing development where public transport is most accessible will create new jobs and educational opportunities for many people. It will also help to create more vibrant community hubs and a welcome alternative to the ever-rising cost of car travel.

The Nashua Transit Oriented Development

The New Hampshire Department of Transportation (DOT), the Nashua Regional Planning Commission, and the City of Nashua are currently developing a commuter rail project that would enable direct access from Nashua to Boston via Lowell, Mass. The project will be an extension of Massachusetts Bay Transit Authority (MBTA) commuter service that currently terminates in Lowell. A station site has been selected at the end of East Spit Brook Rd. The project, which has been mired in controversy for two years, has recently overcome a very big hurdle and is moving towards initial operations in 2008.

Working together, Steve Williams, NRPC's Executive Director, Kathy Hersh, Community Development Director for the City and Jay Minkarah, Economic Development Director for the City evolved an innovative plan to raise matching funds. They proposed that the commuter rail station site on East Spit Brook Road be developed at high density with mixed land uses in a Transit Oriented Development. Such development would result in a large increase in property taxes to the City of Nashua. These property taxes could then be captured through a Tax Increment Financing (TIF) district. The City would then be able to issue revenue bonds against the increased property tax income. The revenue bonds would then pay the required $14 million in matching funds.

For more information on the Nashua Transit-Oriented Development and commuter project, go to:
http://www.nashuarpc.org/commuterrail/index.htm

Context Sensitive Solutions (CSS)

The New Hampshire Department of Transportation is starting an initiative to train their staff, other state agencies, consultants, the RPCs and citizens on the ***Context Sensitive Solution*** *process so that they can work with local communities in developing partnerships to help all stakeholders participate in the change.*

The Federal Highway Administration (FHWA) defines Context Sensitive Solutions (CSS) as "a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility (i.e. road, railway, bike/pedestrian path, etc.) that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility. CSS is an approach that considers the total context within which a transportation improvement project will exist."

CSS is about "open, honest, early and continuous" communication and sharing of information and knowledge - not just professional knowledge, but the knowledge that communities and stakeholders bring to a project from their personal experience. CSS involves structuring a planning, design, and implementation process that is collaborative and creates consensus among stakeholders and the transportation agency.

CSS is a multi-disciplinary approach to the project development process that allows "the context" to be addressed from the point of view of more than just the transportation function. However, a well-executed CSS process does not

guarantee excellence in transportation design. The design "product" should reflect the well-crafted combination of the CSS process element and the skilled early input of the designer.

Traffic Calming Techniques

Traffic calming is a way to design streets, using physical measures, to encourage people to drive more slowly. It creates physical and visual cues that induce drivers to travel at slower speeds. Traffic calming is self-enforcing. The design of the roadway results in the desired effect, without relying on compliance with traffic control devices such as signals, signs, and enforcement. While elements such as landscaping and lighting do not force a change in driver behavior, they can provide the visual cues that encourage people to drive more slowly.

The Objectives of Traffic Calming

- *To encourage citizen involvement in the traffic calming process by incorporating the preferences and requirements of the citizens;*
- *To reduce vehicular speeds;*
- *To promote safe and pleasant conditions for motorists, bicyclists, pedestrians, and residents;*
- *To improve the environment and livability of neighborhood streets;*
- *To improve real and perceived safety for non-motorized users of the streets; and*
- *To discourage use of residential streets by non-citizens cut through vehicular traffic.*

The reason traffic calming is such a powerful and compelling tool is that it has proven to be so effective. Some of the effects of traffic calming, such as fewer and less severe crashes, are clearly measurable. Others, such as supporting community livability, are less tangible, but equally important.

Research on traffic-calming projects in the United States supports their effectiveness at decreasing automobile speeds, reducing the numbers of crashes, and reducing noise levels for specific contexts. Looking at a sample of various speed studies shows that typical speed reductions of 5 to 20 percent at the 85th percentile speed can be realized by the use of traffic-calming measures—including speed tables, mini-circles, speed humps, and other standard traffic-calming devices. Use of several of the traffic-calming measures has also resulted in substantial reductions in motor vehicle crashes.

***Traffic calming** techniques should be integrated into your municipality's subdivision regulations. It is important to remember that appropriate techniques should be used only on the accordingly appropriate streets/roads.*

Roundabout in Nashua, NH.

OFFICE OF ENERGY AND PLANNING - TECHNICAL BULLETINS

Available on the OEP website at: www.nh.gov/oep/resourcelibrary/TechnicalBulletins.htm **OR** by calling the office at 603-271-2155.

Community Profile Project
(Revised 2001)

Formulating a Water Resources Management & Protection Plan
(Winter 1992)

Land Use and Transportation
(Fall 2005)

Master Planning
(Summer 2003)

Outdoor Lighting
(Summer 2001)

Planning for Wireless Telecommunications
(Spring 2001)

Preservation of Scenic Areas and Viewsheds
(Spring 1993)

Preserving Rural Character: The Agriculture Connection
(Winter 2000)

Roads - Guidance on Design, Construction and Approval for Local Planning Boards (1998)

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Wetlands Mitigation/Restoration Issues
(Spring 1988)

What is a Forested Floodplain?
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